

Amendments to the Drawings:

Please replace FIG. 4 with the replacement drawing included in the Appendix.

Applicants submit that the amended FIG. 4 is fully supported by paragraphs [0018] and [0019] of the original disclosure, and that no new matter has been added. As amended, FIG. 4 has been corrected to more accurately reflect the process described in paragraphs [0018] and [0019]. Specifically, the paths following from process 402 have been relabeled to reflect the algorithm described in said paragraphs. Furthermore, process 406 has been reworded to reflect the determination of whether a quantity of NVC is available for HD spin down, as described in paragraph [0019].

REMARKS

The applicants respectfully requests reconsideration of the above referenced patent application in view of the amendments and remarks set forth herein, and respectfully request that the Examiner withdraw all rejections. Claims 1, 3, 5, 7, 8, 10, 12, 14, 15, 17, 19 and 21 have been amended. Claims 2, 9 and 16 have been canceled. No claims have been added. Thus, claims 1, 3-8, 10-15 and 17-21 are pending.

Objections

Specification Objections

The Office Action objects to the Abstract for allegedly failing to describe the present invention. Applicants have submitted a replacement sheet of the Abstract in the Appendix at the end of this response. Applicants believe that the Abstract replacement sheet is descriptive of the present invention and does not introduce new matter in the specification. Accordingly, Applicants request that this objection be withdrawn.

The Office Action further objects to the abstract of the disclosure for an alleged extraneous mark, i.e. "Attorney Docket 42.P181169." The Office Action cites MPEP § 608.01(b) as a basis for the objection. For the purposes of a full response, Applicant assumes that the Office Action refers to the text "Attorney Docket 42.P18169" included in the footer for that page next to the page number.

Applicant traverses this objection, noting that MPEP § 608.01(b) requires that the Abstract sheet "not include other parts of the application or other material." Applicant

finds no limitation against “extraneous marks” per se, and submits that the limitation applies to subject matter in the text rather than to including file information for tracking purposes. For illustration, Applicant directs the Examiner to MPEP § 513 which states, “[i]t is not necessary that the [Express Mail] number be placed on each page of a particular paper or fee transmittal.” Applicant submits that MPEP § 513 does not require, but implicitly allows each page of a filed application, including the Abstract sheet, to include the Express Mail number. Like the Express Mail number, including a docket number or other file information on the Abstract sheet helps the Applicant and the Office to keep track of application sheets throughout examination. It is the regular practice of the law firm representing Applicant to include this information on Abstract sheets without objection from the Office. Applicant respectfully submits that MPEP § 608.01(b) has not and should not be read to prohibit file information on an Abstract sheet, and asks that this objection be withdrawn.

The Office Action objects to the paragraph [0001] of the disclosure as lacking the application numbers of co-pending applications. By amendment, Applicants have added to paragraph [0001] the application numbers of co-pending applications. Accordingly, Applicants request that this objection be withdrawn.

Claim Objections

The Office Action objects to claims 2-3, 7, 9-10, 14-16 and 21 for various informalities. Regarding claims 2-3, 9-10, and 15-16, the Office Action argues that the phrases “HD reads have been” and “NVC would be available” should be amended to

read, respectively, “HD reads that have been” and “NVC that would be available.”

Applicants do not find either of the relevant phrases in original claim 15, but presume for the purposes of fully responding that the objection to claims 15 and 16 are meant to apply to claims 16 and 17. Applicants submit that the objections to claims 2, 9 and 16 are rendered moot by the cancellation of said claims. Claims 3, 10 and 17 are amended to include the changes set forth in the Office Action. Accordingly, Applicants request that the objection to claims 3, 10 and 17 be withdrawn.

Second, claims 7, 14 and 21 are objected to for using the phrase “spinning down the HD **and** spinning up the HD.” The Office Action alleges that each claim should read “spinning down the HD **or** spinning up the HD” to avoid contradictory language. Claims 7, 14 and 21 are amended to include the changes set forth in the Office Action. Accordingly, Applicants request that the objection to claims 7, 14 and 21 be withdrawn.

35 U.S.C. §101 Rejections

The Office Action rejects claims 8-14 under 35 U.S.C. §101 as being directed to non-statutory subject matter. Specifically, the scope of claims 8-14 is alleged to include non-statutory subject matter such as carrier waves and signals, based on paragraph [0027] of the original disclosure. As set forth in the Amendment to the Specification, Applicants have removed from paragraph [0027] all references to carrier waves or related types of signals. Applicants submit that amendments to the claims and to the specification have limited the scope of claims 8-14 to include only patentable subject matter. Applicants request that the 35 U.S.C. §101 rejection of claims 8-14 be withdrawn.

35 U.S.C. §102 Rejections

35 U.S.C. §102(a) and (e) Rejection over *Coulson*

The Office Action rejects claims 1-21 under 35 U.S.C. §102(a) and (e) as being anticipated by *Coulson*, U.S. PG Publication 2003/0074524 A1 (*Coulson*). The Office Action alleges that *Coulson* discloses the subject matter of independent claims 1, 8 and 15. In particular, *Coulson* is alleged to anticipate the predetermined event of these claims, and the change of power state of the hard drive resulting therefrom. To overcome either a 35 U.S.C. §102(a) or (e) rejection, the applicants may either demonstrate that the cited document fails to teach one limitation in the rejected claim, or add such a limitation to the claim by appropriate amendment. For at least the following reasons the applicants traverse the above rejection.

Independent claims 1, 8 and 15 have been amended to substantially integrate the limitations of cancelled claims 2, 9 and 16, respectively. Each of currently amended independent claims 1, 8 and 15 recites in a salient portion (emphasis added):

“...a **predetermined event** including at least one of satisfying by a non-volatile cache (NVC) of a hard drive (HD) consecutive HD reads for at least a **previous predetermined period of time**, and satisfying by the NVC a **previous predetermined quantity of consecutive HD reads**;
in **response** to the predetermined event, **changing** a power state of the HD...”

The amended claim language is supported in the original disclosure at least by FIG. 4 and by the discussion in paragraphs [0017]-[0018]. Each of these claims describes a method which depends on the occurrence of a predetermined event wherein the NVC satisfies at least one of two requirements. Specifically, the NVC must have satisfied consecutive HD reads for **either** a previous predetermined **period of time**, **or** a previous predetermined **quantity of reads**. Once the history of NVC-serviced HD reads has satisfied either requirement, a change in the power state of the HD is initiated. Therefore, the change of power state according to the present invention depends on the **history of NVC-serviced HD reads**.

By contrast, *Coulson* does not change the HD power state based on the history of NVC-serviced HD reads. In alleging that this particular claim limitation is anticipated, the Office Action points to paragraph [0033] of *Coulson*, which states that “**only** read misses will cause the disk to be accessed” (emphasis added). “Read misses” are defined in paragraph [0023] of *Coulson* as existing “where a read request could not be satisfied from cache.” Paragraph [0027] of *Coulson* explains that read requests are satisfied when “the data requested may already reside in the cache”- i.e. **only** depending on the **current** state of the cache, and whether the cache in its current state contains the data needed to satisfy the current HD read request. In other words, the changing of the HD power state according to *Coulson* takes place **regardless** of the **history** of NVC-serviced HD reads.

Since *Coulson* cannot change the HD power state based on the history of NVC-serviced HD reads **generally**, it cannot do so **particularly** based on either historic NVC-serviced HD reads for a previous predetermined period of time, or on historic NVC-

serviced HD reads for a previous predetermined quantity of reads. Therefore, *Coulson* cannot change the power state of the HD **in response** to the predetermined event as claimed in the present invention. Accordingly, each of independent claims 1, 8 and 15 has at least one limitation not taught by *Coulson*, and is not anticipated by *Coulson*. In depending directly or indirectly from one of independent claims 1, 8 and 15, each of claims 3-4, 10-11, and 17-18 incorporate at least one limitation not taught by *Coulson*. Therefore, the applicants request that the rejections of claims 1, 3-4, 8, 10-11, 15 and 17-18 under 35 U.S.C. §102(a) and (e) based on *Coulson* be withdrawn.

An response similar to the foregoing discussion relates to amended claims 5, 12 and 19, which have each been changed into independent form. Applicants submit that these claims remain fully supported by the original disclosure. In rejecting claims 5, 12 and 19, the Office Action alleges that *Coulson* discloses a predetermined event including detecting a predetermined number of HD transactions serviced by the NVC or the HD. For at least the following reasons, Applicants traverse this rejection.

Currently amended independent claims 5 recites in a salient portion (emphasis added):

“...a **predetermined event** including detecting a **predetermined number** of hard drive (HD) data transactions serviced by a non-volatile cache (NVC) of the HD or the HD;

in **response** to the predetermined event, **changing** a power state of the a HD...”

Each of currently amended independent claims 12 and 19 contains a similar limitation. These claims are supported in the original disclosure at least by FIG. 5 and by the discussion in paragraphs [0023]-[0024]. Each of these claims describes a method which depends on the occurrence of a predetermined event wherein the NVC and the HD have serviced a predetermined number of HD data transaction. Once this requirement of the **history of HD data transactions** is met, a change in the power state of the HD is initiated. Accordingly, the present invention changes the HD power state base on an evaluation of the **history** of HD data transactions.

By contrast, *Coulson* does not change the HD power state based on the history of HD data transactions. In alleging that this particular claim limitation is anticipated, the Office Action points to paragraph [0020] of *Coulson*. Applicants respectfully submit that paragraph [0020] discusses the handling of a current memory request, and that nothing in paragraph [0020] or in *Coulson* generally discloses an evaluation of the **history** of HD data transactions. As in the foregoing discussion, *Coulson* **only** uses read misses to change the power state of the HD, paragraph [0033]. Under *Coulson*, read misses occur where a read request could not be satisfied from cache, paragraph [0023], i.e. the data requested does not reside in the cache, paragraph [0027]. Applicants submit that whether a read request can be satisfied from cache depends on the content of the cache at the time, and **not** on the history of HD data transactions. In other words, a **current** read request may or may not be serviceable by the cache **regardless** of how **previous** HD data transactions were serviced. Therefore, *Coulson* neither defines a predetermined number

of data transactions, nor requires that such a number of data transactions be serviced by the NVC or the HD before the HD changes its power state.

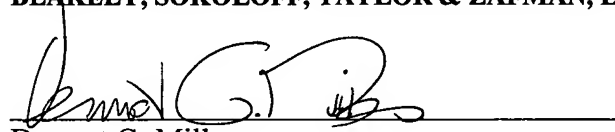
Since *Coulson* only changes the power state of the HD based on events unrelated to the history of data transactions, *Coulson* cannot change the power state of the HD **in response** to the predetermined event as claimed in the present application. Therefore, each of independent claims 5, 12 and 19 has at least one limitation not taught by *Coulson*, and is patentable over *Coulson*. In depending directly or indirectly from one of independent claims 5, 12 and 19, each of claims 6-7, 13-14, and 20-21 incorporate at least one limitation not taught by *Coulson*. Therefore, the applicants request that the rejections of claims 5-7, 12-14 and 19-21 under 35 U.S.C. §102(a) and (e) based on *Coulson* be withdrawn.

CONCLUSION

For at least the foregoing reasons, Applicants submit that the objections and rejections have been overcome. Therefore, claims 1, 3-8, 10-15 and 17-21 are in condition for allowance and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the present application. Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP

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Appendix:

A: REPLACEMENT FIGURE 4

B: PAGE "16" FOR THE REPLACEMENT ABSTRACT SHEET

Application No. 10/749,756
Amendment dated June 12, 2006
Response to Office Action of March 13, 2006

Atty. Docket No. 42.P18169
Examiner WALTER, Craig
TC/A.U. 2188

APENDIX A

REPLACEMENT DRAWINGS SHEET

Application No. 10/749,756
Amendment dated June 12, 2006
Response to Office Action of March 13, 2006

Atty. Docket No. 42.P18169
Examiner WALTER, Craig
TC/A.U. 2188

APENDIX B

REPLACEMENT ABSTRACT